REMARKS

II. The Pending Claims and the Amendments to the Claims, Drawings, and Specification

With the entry of the above amendments to the claims, Claims 1-6, 10-18, 21-41 are pending, with Claims 1, 29, 34, and 39 being the pending independent claims, and Claims 2-6, 10-18, 21-28, 30-33, 35-38, 40, and 41 being the pending dependent claims. Claims 7-9, 13, 19, and 20 stand canceled. Claims 23-41 are newly-presented.

The amendments to the Claim 1 include the recitation of the first and second films as being flat films, as disclosed, for example, at Paragraph 10 on Page 4. The amendments to Claims 2, 4-6, 12, 16, and 21 are similar in that they merely include the addition of the word "flat". Claim 1 has also been amended to recite the first and second films as passing in partial wrap around a heated roller having a raised surface, as disclosed, for example, in Paragraphs 38 and 39 on Pages 16-17 of the specification. Claim 10 is amended by changing the dependency from Claim 8 to Claim 1, due to the cancellation of Claim 8. Claim 10 is also amended to further recite that the first and second rolls have raised surfaces which are in nip relationship with the first and second flat films passing through the nip, as disclosed at, for example, Paragraph 12 on Page 5 of the specification. Claim 11 is amended to depend from Claim 1 rather than from canceled Claim 8, and Claim 14 is amended to depend from Claim 1, rather than canceled Claim 13, and Claim 15 is amended to depend from Claim 1, rather than canceled Claim 13.

Newly-presented Claim 23 recites after cooling the first flat film and the second flat film make a partial wrap around a roller which is upstream of the heated roller having the raised surface. Support for this feature can be found in roller 66 in FIG. 10 as well as in Paragraph 37 on Page 16 of the specification. Newly-presented Claim 24 recites this roller (e.g., roller 66) as being

in nip relation with the heated roller having the raised surface, as can be found in roller 66 in FIG. 10, as well as in Paragraph 37 on Page 16 of the specification. Newly-presented Claim 25 recites the first flat film as making a longer partial wrap around this roller (e.g., 66) than the second flat film does. Support for this feature can also be found in FIG. 10, as well as in Paragraph 37 on Page 16 of the specification.

Newly-Presented Claim 26 recites the release coating (which is on the heated roller having the raised surface) as comprising a polyinfused coating. Support for this feature can be found in the specification at, for example, Paragraph 42 on Page 18 of the specification. Newly-presented Claim 27 recites the polyinfused coating as comprising polytetrafluoroethylene (e.g., Teflon brand polytetrafluoroethylene), as also disclosed in the specification at, for example, Paragraph 42 on Page 18 of the specification.

Newly-presented Claim 28 recites the raised surface on the heated roller as having a surface roughness of from 50 to 500 rms, as disclosed in the specification at, for example, Paragraph 39 on Page 17.

Newly-presented independent Claim 29 is similar to Claim 1 in that it is also directed to an integrated process for making an inflatable laminated article, with the steps of extruding, cooling, and contacting being the same as recited in Claim 1. However, the heating step in Claim 29 differs from Claim 1 in specifying that it is the second flat film which is between the first flat film and the raised surface of the heated roller. Support for this feature can be found in the specification at, for example, Paragraph 38, which spans Pages 16 and 17. Newly-presented Claim 30 is directed to the feature that the second flat film is in direct contact with the raised surface of the heated roller, as is disclosed in the specification at, for example, Paragraph 38. Newly-presented Claim 31 recites the

second flat film comprises at least one member selected from the group consisting of polyamide and polyethylene terephthalate. This feature is disclosed in the specification at, for example, Paragraph 50 on Page 22 of the specification. Newly-presented Claim 32 recites the first flat film as comprising at least one member selected from the group consisting of polyamide and polyethylene terephthalate, as disclosed in Paragraph 50 on Page 22 of the specification. Claim 33 recites both the first and second flat films as comprising at least one member selected from the group consisting of polyamide and polyester, as disclosed in the specification at, for example, Paragraph 50 on Page 22 of the specification.

Newly-presented independent Claim 34 is similar to Claim 1 in that it is also directed to an integrated process for making an inflatable laminated article, with the steps of extruding and cooling being the same as recited in Claim 1. However, Claim 34 differs from Claim 1 in specifying the "contacting" step as being carried out while the first and second flat films are being forwarded at a speed of at least 120 feet per minute. This feature is disclosed in the specification at, for example, Paragraph 42 on Pages 18-19 of the specification. Moreover, the heating step in Claim 34 differs from Claim 1 in reciting the raised surface having a surface roughness of from 50 to 500 rms (disclosed in the specification as discussed above), and the raised surface having edges rounded off to a radius of from 1/256 inch to 3/8 inch, which is disclosed in the specification at, for example, Paragraph 42 on Pages 18-19 of the specification. In addition, Claim 34 differs from Claim 1 in reciting the cooling step as being carried out by passing the first and second flat films together in a partial wrap around a cooling roller having a release coating thereon, the release coating on the cooling roller having a Shore A hardness of from 40 to 100, with the cooling roller being in nip relationship with the heated roller having the raised surface. These features are all

disclosed in the specification at, for example, Paragraph 41 which spans Pages 17-18 of the specification. It should be noted that Claim 34 also differs from Claim 1 in that it does not recite the first and second flat films as passing in partial wrap around the heated roller having the raised surface.

Newly-presented Claim 35 recites the first film contacting the second flat film while the films are being forwarded at a speed of from 150 to 500 feet per minute, as disclosed in the specification at, for example, Paragraph 42 which spans Pages 18-19 of the specification. Newly-presented Claim 36 recites a speed of 150-300 feet per minute, as also disclosed in Paragraph 42. Newly-presented Claim 37 recites the release coating on the raised surface of the heated roller as comprising a polyinfused coating, as disclosed in Paragraph 42 on Page 18 of the specification. Newly-presented Claim 38 recites the polyinfused coating as comprising polytetrafluoroethylene, as also disclosed in Paragraph 42 of the specification.

Newly-presented independent Claim 39 is similar to Claim 1 in that it is also directed to an integrated process for making an inflatable laminated article, with the steps of extruding and cooling being the same as recited in Claim 1. However, Claim 39 differs from Claim 1 in reciting heating by the second flat film by passing it in partial wrap around a heated roller having a raised surface and contacting the first flat film with the second flat film after the second flat film passes a point of initial contact with the heated roller. These process features are disclosed in the specification at, for example, the process illustrated in FIG. 2, together with the description thereof in Paragraph 13 on Page 9 of the specification.

Newly-presented Claim 40 recites the second flat film as being passed in a partial wrap around the heated roller having a raised surface, and the first flat film is passed in a partial wrap

around a second roller which is in a nip relationship with the second roller. Support for this feature can also be found in the specification in, for example, FIG. 2 in combination with Paragraph 13 on Page 9 of the specification.

Newly-presented Claim 41 recites the second roller as being a heated roller having a raised surface which is operatively aligned with a raised surface on the first roller to heat seal the selected portions of the first film and the second film. This feature is described in the specification at, for example, Paragraph 12 on Page 5.

The amendments to the claims, and the newly-presented claims, contain no new matter.

Turning next to the amendments to the drawings, Applicants note that in response to the Office Action mailed 12 February 2003, Applicants provided "Proposed New FIG. 11" and "Proposed New FIG. 13". Thereafter, Paragraph 4 of the 17 July 2003 Office Action states that the proposed amendments to the drawings are approved, and that proper drawing amendments are required. In response, Applicants provide herewith amended FIG. 11 and FIG. 13 which do not contain the wording "Proposed New", but otherwise are in accordance with the approved FIG. 11 and the approved FIG. 13. Applicants request that the original sheets containing FIG. 11 and FIG. 13 be canceled, and that the FIG. 11 and FIG. 13 provided herewith be substituted therefor. Moreover, formal drawings for each of FIG.s 1-13 are provided herewith.

Finally, turning to the various amendments to the specification, Applicants note that the amendments to Pages 9, 14, 16, and 19 are to correct obvious clerical/typographical errors. However, the amendment to Page 22 is the addition of the approved numerals designating the chambers and connecting channels of the inflatable article of FIG. 13, i.e., per the proposed amendment of FIG. 13,

which was approved in the 17 July Office Action. As such, it is apparent that the amendments to the specification include no new matter.

III. Claim 1, as Amended Above, Is Patentable over LARSON and The Various §103 Rejections of the Claims

In the 17 July final Office Action, Claims 1-5, 7-13, and 15 were rejected under 35 USC 103(a) as unpatentable over U.S. Patent No. 4,096,306, to Larson ("LARSON") in view of U.S. Patent No. 4,657,625, to Kawakami ("KAWAKAMI").

Applicants contend that as amended above, Claim 1 is patentable over LARSON in view of KAWAKAMI. LARSON teaches making an inflatable article by sealing two films together by supporting the two films on a planar surface in face to face contact with edges aligned, with the raised ridges of a heated die pressing against the films to fuse the films together in the desired seal configuration. LARSON goes on to suggest the alternative of "...fusing the films together between heated rotating members to afford continuous movement to the films...." LARSON does not go on to elaborate on precisely how the films would be fused together between the heated rotating members. LARSON simply states that that fusion occurs *between* the rollers. It would seem that LARSON is suggesting passing the films together between a pair of heated rollers, i.e., through a nip between heated rollers, with at least one of the heated nip rollers having raised ridges, to produce the desired configuration of fusion. LARSON appears to suggest that one of the rollers could be smooth with the other having the raised ridges (i.e., correlating the teaching of the rotating members with the disclosure of planar surface 23 and raised ridge die 24). Nevertheless, whatever LARSON teaches with respect to fusing two films together between heated rotating members, it is clear that LARSON

does not specifically teach or specifically suggest *that the films pass together in a partial wrap* around a heated roller having a raised surface, as recited in Applicants' amended Claim 1.

Turning to KAWAKAMI, more specifically to whether KAWAKAMI provides a teaching or suggestion to modify LARSON to result in Applicants' claimed invention, it should be noted that KAWAKAMI teaches heating rollers 7 and 10 which preheat the films to an "appropriate temperature" before passing cap film 2 onto forming roller 8. KAWAKAMI contains no teaching that forming roller 8 is heated. Moreover, a review of the temperature drop from D to E, from I to F, and from J to M as set forth in the sole Example in KAWAKAMI indicates that forming roller 8 is *unheated.* Projections 2a are then vacuum formed in cap film 2 during contact with forming roller 8. It is only after projections 2a are formed that back film 3 contacts and seals to the unformed portion of cap film 2, with each of the two films thereafter making a partial wrap around forming roller 8. Based on this teaching in KAWAKAMI, it is apparent that heating rollers 7 and 10 must heat films 2 and 3 to a temperature adequate for fusion before the films contact one another as they pass in a partial wrap around forming roller 8. However, it is also clear that KAWAKAMI does not teach or suggest fusing two *flat* films to one another by passing them together in a partial wrap around a forming roller. KAWAKAMI teaches one of the films being thermoformed, not flat. While the phrase "flat film" is inclusive of smooth films and textured films, a thermoformed film is not a flat film. And again, KAWAKAMI does not teach or suggest *heating* the roller around which the flat films pass in partial wrap. In fact, KAWAKAMI is particularly directed to controlling temperature rises and falls of heating rollers 8 and 10, as well as temperature uniformity of heating rollers 8 and 10, which is a further reason that KAWAKAMI does not teach or suggest the use of forming roller 8 to heat and seal during the partial wrap of films 2 and 3 therearound.

Moreover, in the process of KAWAKAMI, the two films passing in partial wrap around forming roller 8 fuse everywhere they contact one another, with the formed portion of cap film 2 not being in contact with backfilm 3. This is a fundamental difference with Applicants' process as recited in Claim 1, as Applicants' process results in the sealing of *selected portions* of films which are able to contact one another. That is, in Applicants' process, the "unselected portions" of the films are not sealed to one another, but nevertheless are in contact with one another while they pass around the heated raised surface roller. Neither LARSON nor KAWAKAMI, alone or in any combination thereof, teach or suggest this feature, which is present in Applicants' Claim 1 in the recitation of "...passing the first and second flat films *together* in a partial wrap around a heated roller having a raised surface...." (emphasis added).

Accordingly, Applicants contend that Claim 1, as amended above, is patentable over LARSON in view of KAWAKAMI, as well as being patentable over KAWAKAMI in view of LARSON. Neither LARSON nor KAWAKAMI, nor any combination of LARSON and KAWAKAMI, teaches or suggests passing two flat films together in a partial wrap around a heated roller having a raised surface in order to seal the two flat films to one another to produce an inflatable article which is uninflated. For these reasons, the combination of LARSON and KAWAKAMI does not give rise to a prima facie case of obviousness of Claim 1, as amended above.

Moreover, newly-presented independent Claim 34 (as well as depending Claims 35-38), in reciting the films as passing together in partial wrap around the heated roller having the raised surface, is patentable over LARSON in view of KAWAKAMI (and vice versa) for at least the same reasons Claim 1 is patentable over these documents. Moreover, Claim 34 recites the additional features of (a) forwarding the flat films at a speed of at least 120 feet per minute, (b) a heated roller

having a raised surface having a release coating thereon, with the raised surface having a surface roughness of from 50 to 500 rms, and the raised surface having edges rounded off to a radius of from 1/256 inch to 3/8 inch, and (c) cooling the first and second flat films after heating the selected portions of the flat films, the cooling being carried out by passing the first and second flat films together in a partial wrap around a cooling roller having a release coating thereon, the release coating on the cooling roller having a Shore A hardness of from 40 to 100.

The final office action of 17 July states that it would have been obvious to one of ordinary skill to optimize speed as a function of the amount of quality inflatable products produced, and this would have required nothing more than ordinary skill and routine experimentation. As Applicants worked to make their invention, they encountered and solved various problems until they were able to carry out their process at a speed of at least 120 feet per minute. Applicants had to work to determine what the problems were, and how to solve them. Applicants discovered that at such speeds, it was necessary to provide the heated roller having the raised surface with a surface roughness of at least 50 rms. If the surface roughness is as smooth as in other processes utilizing heated rollers (i.e., a mirror finish in the 5 to 15 rms range for a roller used to heat laminate films together), it requires more force to pull the film from the heated roller, due to lack of atmosphere (i.e., vacuum suction) between the film to the heated roller. While this may be satisfactory for some film processing operations, it is not satisfactory in the process of the invention at speeds of at least 120 feet per minute, because the force affects the heated regions of the film, which can be pulled on with enough force to distort the film, damage the integrity of the seal, or even tear the film. There is no teaching or suggestion in either LARSON or KAWAKAMI to provide the raised

surface of the heated roller with a surface roughness any different from the typical heated roller, which as pointed out above, is smooth, not at least 50 rms.

In addition, Applicants have found that at speeds of at least 120 feet per minute, it is advantageous to provide a cooling roller which is in nip relationship with the heated roller having the raised surface, with the cooling roller having a release coating having a Shore A hardness of from 40 to 100. The Shore A hardness of the release coating is advantageous because it produces an extended area of pressure (and an extended time of pressure) between the cooling roller and the heated roller having the raised surface. This extended area of pressure and extended time of pressure assists in pressing the two flat films together to form a strong heat seal.

Moreover, the Shore A hardness of 40 to 100 is related to the raised surface having edges being rounded off to a radius of from 1/256 inch to 3/8 inch. That is, if the raised surface edges are not rounded off, the pressure exerted by the cooling roller can damage the hot areas of the flat films by literally cutting through them, because the films are quite hot when they pass into and out of the nip with the cooling roller.

Thus, it can be seen that release coatings, surface roughness, the rounding off of the edges of the raised surface, the cooling roller in nip relationship, the hardness of the surface of the cooling roller, and the process speed are interrelated in the process of the present invention. There is no teaching or suggestion in the various reference documents that this combination of features is advantageous in a process in which two flat films are passed in partial wrap around a heated roller having a raised surface. Clearly, Claim 34, and claims depending therefrom, are patentable for at least these additional reasons.

Turning next to independent Claim 39, Applicants note that Claim 39 is similar to Claim 1, but instead of reciting the first and second flat films as passing together in partial wrap around a heated roller having a raised surface, Claim 39 recites heating selected portions of the *second* flat film to a temperature above a fusion temperature, by passing the second flat film in a partial wrap around a heated roller having a raised surface, and contacting the first flat film with the second flat film *after* the second flat film comes into contact with the heated roller (i.e., after the second flat film comes into a point of initial contact with the heated roller), with the second flat film being between the heated roller and the first flat film. Thus, Claim 39 requires at least the second flat film to make a partial wrap around a heated roller having a raised surface. The first flat film may or may not make a partial wrap around the heated roller, but in any event, the first flat film contacts the second flat film after the second flat film has made part or all of its partial wrap around the heated roller having the raised surface. Both films remain flat throughout the process recited in Claim 39.

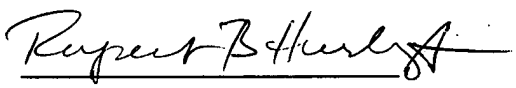
KAWAKAMI does not teach or suggest a process in which both films remain flat while at least one of the films makes a partial wrap around a roller. KAWAKAMI teaches a process in which two films make a partial wrap around an unheated roller, with the film which is closer to the roller being non-flat, i.e., being formed. LARSON teaches making an inflatable article by passing two flat films between heated rotating members at least one of which has raised ridges, but does not teach or suggest a *partial wrap* of either flat film around one or more of the heated rollers. Thus, neither LARSON in view of KAWAKAMI, nor KAWAKAMI in view of LARSON, teaches or suggests the process of Applicants' Claim 39, in which the second flat film makes a partial wrap around a heated roller having a raised surface, with the first flat film contacting the second flat film

after the second flat film contacts the heated roller, with the films remaining flat throughout the process. Accordingly, there is no prima facie case of obviousness of independent Claim 39, as well as dependent Claims 40 and 41, which depend directly or indirectly from Claim 39.

Conclusion

Accordingly, Applicants respectfully request reconsideration of the patentability of the claims, as amended above, with a view towards allowance.

Respectfully Submitted,



Rupert B. Hurley Jr.
Reg. No. 29,313
Attorney for Applicants
(864) 433-3247

24 October 2003

enclosed:
FIGs. 1-13 (formal)